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A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
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Dear Sir:

Contracts for propulsion machinery for eight nuclear powered submarines have been awarded by the Navy to General Electric Co., Westinghouse Electric Co., and De Laval Steam Turbine Co. Turbo-generators and other gear will be supplied. GE, at Lynn, Mass., received $9,294,465 contract; Westinghouse, at Essington and Pittsburgh, Pa., received $4,845,000 contract; and De Laval, at Trenton, N.J., contract for $4,847,510.....Operating contract of Lockheed Aircraft Corp. for Georgia Nuclear Laboratories, near Dawsonville, Ga., has been renewed by Air Force through the Air Materiel Command. With Lockheed as prime contractor, the laboratories handle irradiation testing, research and development work for the Air Force, National Aeronautics and Space Administration, USAEC, the Army and other agencies. Staff now totals about 180. The 10,000 acre facility includes two reactors, hot cells, laboratory buildings and other specialized equipment. (Other CONTRACT NEWS, p. 4 this LETTER.)

Plant for recovery of plutonium from uranium used in French reactors will be erected by the French Atomic Energy Commission. Uranium to be processed will be from plants of the Commission at Chinon and in the Aree area, and from the Electricite de France plant at Marcoule. Probable site of the new plant will be Cap de la Hague, the tip of the Cotentin peninsula. (Other PROCESSING NEWS, p. 3 this LETTER.)

Design work has been stopped by the USAEC on the Nuclear Test Plant (NTP) which was scheduled for construction in the Army reactor experimental area of the national reactor testing station, Arco, Idaho. Termination of the work was result of changes in military requirements for field nuclear power plants of the type for which the NTP was to have been a test facility. Affected contractors are Combustion Engineering, Inc., Windsor, Conn., who were handling the conceptual design work and C. F. Braun and Co., Alhambra, Calif., the architect-engineers. (The NTP would have used a water-cooled reactor system having maximum flexibility and extensive instrumentation to facilitate the full-scale testing of prototype reactor cores and reactor control systems of varied designs.) (Other BUSINESS NEWS, p. 3 this LETTER.)

Nucleonics, Chemistry and Electronics Shares has reported 36% net gain in assets for the first nine months of its current fiscal year which will end Nov. 30, 1960. On August 31, 1960 the Fund had 25% of its assets in cash or equivalent with the remainder in some 50 companies in the nuclear, chemical and electric industries. Portfolio changes recently made include increases in holdings of Tubescope, Air Products, Nuclear-Chicago, Foote Mineral, Columbia Broadcasting System, Raytheon, Algom Uranium Mines, and Denison Mines. Investments in du Pont and Dow Chemical were eliminated and holdings of Elgin National Watch were reduced. Larger common stock investments of the Fund on Aug. 31, 1960 were in Brush Beryllium, Philip's N.V., Union Carbide, Olin-Mathieson, Farbwerke Hoechst, Columbia Broadcasting System, Rohm & Haas, Perkin-Elmer Corp., Nuclear Chicago Corp., Barry Controls B and Monsanto Chemical. (Other FINANCIAL NEWS, p. 5 this LETTER.)

PRODUCTS, PROCESSES, INSTRUMENTS...

NEW PRODUCTS: New tracer compound, thymidine-methyl-H-3, is now available exclusively from this firm, for uses in biological research. Very high specific activities are available. Now supplied is a specific activity of 2360 millicuries per millimole; on special request specific activities several factors greater are available. -- New England Nuclear Corp., Boston 18, Mass.

New high capacity air sampler is said to collect dusts and aerosols in air at rates up to 200 cu. ft. per minute. The instrument, with applications in collection of radioactive aerosols, industrial dusts, etc., uses a new system of air measuring using a dial reading orifice gage. This is said to give laboratory accuracy of flow measurement. -- Gelman Instrument Co., Chelsea, Mich.

New line of cobalt-60 radiography cameras has provision for containing and using more than one radioactive source. The line includes five machines with capacities of 1, 5, 10, 30 and 100 curies of cobalt-60. They are designed primarily for panoramic and internal radiography, where the machine is used to position the source as required. -- Radionics, Inc., Norristown, Pa.

New fully transistorized pulse amplifier for nuclear applications is designed to amplify the pulses from a proportional counter located up to 2,000-ft. from the unit. Similar distances between the amplifier and the computing device also are possible. -- General Electric Co., Atomic Power Equipment Dep't., San Jose, Calif.

PRODUCT NEWS: Dry solids mass flow density gage, developed by Ohmart Corp., Cincinnati, Ohio, may be used to measure such materials as plastics, foods, minerals and others whose specific gravity can be determined. The new gage used strontium-90 as beta radiation source. Operation is based on the Bremstrahlung effect, in which a beta ray hitting a solid causes it to emit x-rays of various energies. When these pass through the material to a conversion cell on the opposite side, the radiation is converted directly to electrical current.

Radiating Micro-Spheres developed by Minnesota Mining & Manufacturing Co. are a new radioisotope-containing product which the company says offer greatly increased safety in handling radioactivity. Using a special ceramic material, for which patent applications have been filed, the radioisotopes are "caged" mechanically and chemically in tiny spheres. Practically any isotope can be so caged, the company claims, and the special high-temperature, inorganic adhesives used prevent the isotope from being dislodged or leached out. Suggested applications for the Micro-Spheres are in self-luminous devices where their radiation activates phosphors; static eliminators; medical sources for radiation therapy; and process control devices.

The radioisotope calcium-47 is now being produced by Oak Ridge National Laboratory for general distribution. Calcium-47's short half life of 4½-days makes it especially suitable for bone cancer studies since its gamma ray activity disappears almost completely in three weeks. Previously, calcium-45 was used for this purpose, but with a 160-day half-life it was unsatisfactory for most applications; its gamma ray activity takes some 2½-years to disappear completely.

REACTOR NEWS: The Martin Co., Baltimore, has received from the USAEC operating license for its liquid fluidized-bed reactor which has been under development since 1955. Giving promise to produce nuclear power at costs competitive with conventional means, the liquid fluidized-bed reactor has a suspended bed of pelletized fuel in an upward moving current of water. This acts both as coolant and moderator and eliminates need for conventional neutron-absorbing control rods. Martin's current development contract for this work is an $838,162 USAEC award given last Fall.

First nuclear research reactor in Austria was dedicated last fortnight at Seibersdorf, outside of Vienna. It is a 5-megawatt reactor designed and constructed by AMF Atomics division of American Machine & Foundry Co. The reactor is a light water-cooled and moderated tank-type, heterogeneous, solid fueled device which may later be converted to 12 megawatt power. The U. S. has contributed $350,000 toward the cost of this reactor which was built for the Austrian Study Group for Atomic Energy.

Under a $350,000 grant to be made by the U. S. to Yugoslavia, a Triga Mark II research reactor will be acquired by that country's Federal Commission for Nuclear Energy from General Atomic division of General Dynamics Corp., San Diego, Calif. The reactor, a 100 kilowatt tank-type device, will be installed at the Boris Kidric Institute. Letter of commitment has been given by the USAEC to the Federal Commission covering this installation.

ATOMIC ENERGY BUSINESS NEWS...

NEW INSTRUMENTS DEVELOPED FOR PROCESS STREAMS: Four new nucleonic instruments for use in industrial processes have been developed and are now offered by the year-old industrial division of Nuclear-Chicago Corp. Three of these instruments have not been commercially available before. Two of the instruments use gamma radiation to determine densities of solid and liquid materials. The other two measure per cent moisture of solids and liquids by neutron moderation. Trade-named Qualicon, each instrument series consists of three basic parts: a measuring head; the electronic read-out; and the recorder/controller which displays the desired information and controls the measured variable.

NEW SALES OFFICE OPENED: Office opened in Cleveland, Ohio, by Baird-Atomic, Inc., will handle sales and servicing of the company's line of nuclear instruments. Better sales coverage of the area and a more satisfactory contact with customers there prompted company's move. A. V. Evans, formerly with B-A's Pittsburgh office, will head up the new operation of the company which manufactures and sells nucleonic, spectrochemical, infrared and electronic instruments.

NEW BOOKS & OTHER PUBLICATIONS...

Controlled Thermonuclear Reactions. Samuel Glasstone, Ralph H. Lovberg. Useful in providing necessary background for physicists and engineers planning to enter field of research into controlled thermonuclear reactions. Good introduction to the subject for advanced students in physics and engineering. 523 pages. -- D. Van Nostrand Co., Princeton, N. J. ($5.60)

Nuclear Reactors Built, Building, or Planned in the U. S. (as of June 30, 1960). Includes power, propulsion, production, research and test reactors, including those for export. No. TID-8200, 2nd revision. -- Office of Tech. Inf., USAEC, P. O. Box 52, Oak Ridge, Tenn. (free)

Radioactive Waste Handling in the Nuclear Power Industry. Methods of waste handling at six large U. S. nuclear power stations and at installations for processing nuclear fuels; study prepared with assistance of Pickard-Warren-Lowe Associates, consultants, Washington, D.C. 90-pages. -- Edison Electric Institute, 750 Third Ave., New York 17. ($5)

Guide to U. K. Atomic Energy Authority Documents; Second edition. Sources of AEA reports, etc. -- British Information Services, New York 20 (32¢); H. M. Stationery Office, P. O. Box 569, London, England (1s. 6d.)

Beryllium; 8-pages. (10¢).....*Uranium*; 27-pages. (15¢). Preprints from Minerals Yearbook, 1959, to be subsequently issued by Bureau of Mines. -- Sup't of Documents, Wash. 25, D.C.

Blood Vessel Changes Following Local Irradiation of the Brain with High Energy Protons. Part 3 of report on research on localized radio-lesions by Borje Larsson; work at Uppsala University, Sweden. No. PB-146305. (Microfilm, $2.40; Photostat, $3.30).....*Effect of Nuclear Radiation on Structural Metals*. Investigations by B.C. Allen, A. K. Wolff, and others at Battelle Memorial Institute, Columbus, Ohio. No. PB-147103. (Microfilm, $3.30; Photostat, $7.80).....*Coke-Aggregate Concrete as a Shield to Electromagnetic Radiation*. Study by P. F. Nicholson, Naval Research Laboratory, Washington, D.C. No. PB-145522. (Microfilm, $2.40; Photostat, $3.30) .....*Effect of Nuclear Radiation on Semiconductor Materials*. Work by F. J. Reid, J. W. Moody, R. K. Willardson at Battelle Memorial Institute, Columbus, Ohio. (Microfilm, $3.30; Photostat, $7.80) -- Library of Congress, Wash. 25, D.C.

Magnetohydrodynamic Power Generation Using Nuclear Fuel. Report of investigations at Avco-Everett Research Laboratory, Mass., which included work with an experimental MHD generator. No. PB-161824. (75¢).....*Design of Dual Sensor Gamma Ray Calorimeter*. Report of work by James R. Coss, Philip B. Hemmig, at Wright Air Development Div., Wrt.-Patt. AFB, Ohio. No. PB-161787. (50¢).....Office of Technical Services, Wash. 25, D.C.

MANUFACTURERS' LITERATURE: Four page technical bulletin of High Voltage Engineering Corp., Burlington, Mass., describes that firm's low-cost Model AN-400 Van de Graaff positive ion accelerator.....New instrument and filter catalog is available from Gelman Instrument Co., Chelsea, Mich.....Monthly newsletter "Radiation Review" is offered by Radiation Dynamics, Inc., Westbury, L.I. It will be directed to users of particle accelerators for research and electron accelerators for industrial processing.

ATOMIC ENERGY PATENT DIGEST...

PATENTS ISSUED September 27, 1960 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Method of manufacturing heavy water. Paul Harteck, inventor. No. 2,954,279 assigned to Rensselaer Polytechnic Institute, Troy, N.Y. (2) Process for monitoring a solid adsorption process by radioactive means. Don R. Carmody, inventor. No. 2,954,338 assigned to Standard Oil Co., Chicago, Ill. (3) Sample cell for radiation analyzer. A. O. Frenzel, inventor. No. 2,954,472 assigned to Phillips Petroleum Co. (4) Cerenkov radiation fission product detector. John I. Hoover, Clifford M. Gordon, inventors. No. 2,954,473 issued to inventors of record. (5) Measuring. Richard B. Lawrence, inventor. No. 2,954,474 assigned to National Research Corp., Cambridge, Mass. (6) Radiation detection. Norman E. Pedersen, George J. Doundoulakis, inventors. No. 2,954,477 assigned to General Bronze Corp., Garden City, N.Y. (7) Power supply for photomultiplier. John U. White, inventor. No. 2,954,510 assigned to Baird-Atomic, Inc., Cambridge, Mass.

PATENTS ISSUED September 27, 1960 to GOVERNMENTAL ORGANIZATIONS: (1) Range increaser for pneumatic gauges. Andrew H. Fowler, Garland B. Seaborn, Jr., inventors. No. 2,953,918 assigned to USAEC. (2) Pump construction. Gerald Strickland, Frederick L. Horn, Howard T. White, inventors. No. 2,953,993 assigned to USAEC. (3) Process of eliminating hydrogen peroxide in solutions containing uranium values. James G. Barrick, Bernard A. Fries, inventors. No. 2,954,273 assigned to USAEC. (4) Neutronic reactor. Eugene P. Wigner, inventor. No. 2,954,335 assigned to USAEC. (5) Low-loss cable and method of fabrication. Raymond L. McCarthy, James M. Stone, inventors. No. 2,954,421 assigned to USAEC.

PATENTS ISSUED October 4, 1960 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Heat sterilization of iron-binding globulin and adding radioactive iron thereto. John H. Hink, inventor. No. 2,995,074 assigned to Cutter Laboratories, Berkeley, Calif. (2) Radioactive tracer. Alan Beerbower, William H. King, Jr., inventors. No. 2,955,088 assigned to Esso Research and Engineering Co. (3) Non-magnetic mass spectrometer. Willard H. Bennett, inventor. No. 2,955,204 issued to inventor of record. (4) Device in which light beam marks the x-ray beam. Paulus Camfferman, inventor. No. 2,955,205 assigned to North American Philips Co., Inc., New York, N.Y. (5) Radiographic device. Arthur J. Stevens, inventor. No. 2,955,208 assigned to Technical Operations, Inc., Burlington, Mass.

PATENTS ISSUED October 4, 1960 to GOVERNMENTAL ORGANIZATIONS: (1) Remote handling manipulators. Arthur J. Howarth, Fred Jones, Gordon Wortley, inventors. No. 2,954,880 assigned to United Kingdom Atomic Energy Authority, London, England. (2) Radiation detector. Albert Pearson, inventor. No. 2,955,207 assigned to Atomic Energy of Canada, Ltd., Ottawa, Ontario, Canada.

BIDS ASKED, CONTRACTS AWARDED...in the nuclear field...

BIDS ASKED: Bids were asked by the USAEC's New York operations office, 376 Hudson St., for making quantitative determinations of strontium-90 and calcium in vegetable samples for the period Nov. 1, 1960 -- June 30, 1961. Bids are returnable no later than Oct. 17, 1960.

CONTRACTS LET: Test irradiation and related services will be furnished by Westinghouse Electric Corp. under one year contract award made by the USAEC and being administered by the Commission's Idaho Operations office. The Westinghouse testing reactor at Waltz Mill, Pa., will be used for the work. Under the contract, Westinghouse will be paid for reactor irradiation services on a unit price basis which will vary with the extent to which the total irradiation capacity of the reactor is used. The contract also provides payments on an hourly rate basis for special services such as hot cell and other experimental support work.

Contract has been given by the USAEC to Cooper-Trent Blueprint & Microfilm Corp., Arlington, Va., under which the Commission will turn over to the film all engineering materials. Cooper-Trent will then blue-print, or blueprint-type copies which will be available for sale. The Office of Technical Information, of the USAEC, at Oak Ridge, will continue to supply copies of the engineering materials list and its supplements at no charge.

Under recent contract renewal, some $61,703 has been given by the USAEC for a one year period for a study by Westinghouse Electric at Elmira, N.Y., in the field of photoelectronics. The work involves research on development of a high gain image intensifier for use with scintillation track chambers.

RAW MATERIALS...prospecting, mining, marketing...

UNITED STATES: Option on 13 original beryllium claims in south central part of Idaho has been acquired by Beryllium International, Washington, D.C. And last fortnight the company took option on 27 claims in the Delta, Utah area, adjoining the ground of Beryllium Resources, Salt Lake City. (Beryllium Resources, with Brush Beryllium and Dynamic Metals Corp., has pilot plant study underway to determine economic feasibility of Van Dornick flotation ore separation process.)

CANADA: Preliminary operations have started at refinery of Quebec Lithium Corp. at its northwestern Quebec mine. The company plans to adjust the mill's capacity to the requirements of its customers; it can handle 1,000 tons of ore daily. Mining had been suspended last August and milling stopped last November following refusal of Lithium Corp. of America to take spodumene concentrates under its contract when the U. S. firm lost the business of the USAEC. Stockpile of some 8,622 tons of lithium concentrates was on hand at Quebec Lithium at time of this dispute with major part readied for the U. S. firm. Some business with customers for glass grade concentrates has been done since then.

New operational policy has been set for the Elliot Lake area uranium mines under the control of Rio Tinto Mining Co. of Canada as a result of its recent acquisition of Stanleigh Uranium Mining Corp., through merger with Rio Tinto's Preston East Dome Mines. It is planned to continue operations at Stanleigh until Nov. 30. All contracts on hand by Rio Tinto, including Stanleigh's, will then be filled by Rio Tinto's Nordic, Panel, Milliken and Quirke mines, with the latter to be closed the end of 1960, and Panel to continue to mid-1961. Nordic and Milliken, most economic producers, will continue as long-term operations to complete contract obligations.

PEOPLE...in nuclear work...

George M. Bunker, chairman and chief executive officer of The Martin Co., has been elected a director of Nuclear Corp. of America. Clarence W. Miles and Maxwell B. Bassett, of Martin, were also elected to the board. Martin recently acquired controlling stock interest in Nuclear Corp.

Philip N. Ross, general manager of the Westinghouse-operated Bettis atomic power laboratory, has been elected a vice president of Westinghouse Electric Corp.

ATOMIC ENERGY FINANCIAL NEWS...

AMALGAMATION PROPOSED BY CANADIAN MINING COMPANIES: Proposed amalgamation of New Dickenson Mines and Lake Cinch Mines would bring together a former uranium producer (Lake Cinch) and a gold mine (New Dickenson). Lake Cinch is controlled by Violamac Mines and several months ago New Dickenson obtained control of the company through private purchase of 1,484,700 shares for some $1,867,059. Balance sheet for Dickenson on June 30, 1960 prior to the Violamac purchase showed current assets of $969,976, investments at cost of $1,558,931 and supplies at cost of $354,226. Liabilities were $320,826. The balance sheet of Lake Cinch for the same date shows cash and receivables of $2,864,964 and advances to Violamac and others of $567,835. Liabilities were $49,180. Under the proposed amalgamation, which has been opposed by some minority stockholders of Lake Cinch, the stockholders of New Dickenson Mines would receive one share of the amalgamated company (Dickenson Mines, Ltd.) for each share now held. Stockholders of Lake Cinch would receive one share of the amalgamated company for each 4½ shares now held. (In November 1959 when the Canadian government advised mines that uranium markets were limited, Lake Cinch directors terminated the arrangement under which that company had shipped and sold uranium to Lorado Uranium Mines. In March of this year operations at Lake Cinch were stopped. This left the company not only with a good cash position but also an amount of $1,280,768 available for tax write-offs. Dickenson will acquire these write-offs for its own purposes, and will have cash for exploration and development of properties it has lined up for that purpose.)

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

October 11, 1960